TAXONOMIC STUDIES IN COLEOPTERA, WITH NOTES UPON CERTAIN SPECIES OF BEETLES IN THE CHICAGO AREA, I

By Orlando Park

Whitman Laboratory, University of Chicago

During the course of ecological studies on the Coleoptera of the Chicago area covering the last eighty-five months (Park, 1929, a, b), certain apparently new species and varieties of beetles have been found and this opportunity is taken to describe some of them. I am indebted to my friends, Mr. W. J. Gerhard, Mr. Emil Liljeblad, and Mr. A. B. Wolcott of the Field Museum of Natural History for aid and criticism.

Coccinellidæ

Adalia bipunctata schuetti var. nov.

This is a well-marked variety of the ubiquitous species, *Adalia bipunctata* (Linn.) generally indistinguishable from the latter, save for a minute, usually oboval, black maculation in the median marginal area of each elytron (Fig. 2a), and being separated from the margin by its approximate width, these marginal maculæ being between a twentieth to a fortieth as large as the typical elytral maculæ of the species.

Length 4.8–5 mm.; greatest width 3.2–3.5 mm.

Represented by five specimens in the collection of the author, taken at Chicago, Illinois (on sidewalks, fence posts and trees between 54th and 59th streets and Harper and Kenwood Avenues). The type locality is defined here in such a form since random collecting over other areas of the city did not yield additional type material. These five individuals were all taken in late summer. The type was taken on July 10, 1923, by the author. The four paratypes were collected between August 22 and September 18, 1929, by Mr. J. F. Schuett, in whose honor this variety is named.

These specimens are apparently unique in their maculation, and do not approach the known forms of *Adalia,* including the various experimental hybrids of Miss Palmer (1911, 1917).

Otherwise, the variety is typically *bipunctata* in aspect, in maculation, and in size and coloration.

CRYPTOPHAGIDÆ

GLYPTOPHORUS gen. nov.

This genus is allied to that group of genera of the Cryptophaginæ which have the mesosternum not emarginate and the priminent convex eyes situated at the base of the head. From *Crosimus* and *Salebius*, its nearest relatives, it may be readily distinguished by the following generic characters:

Pronotal margins not triundulate as in *Crosimus* and *Salebius*, but distinctly serrate (Fig. 1, a), as in certain Cucujidæ and Derodontidæ. The serratures being approximately the same size, usually acute, recurved, and bearing a backward directed hair.

Pronotal lateral margins without the sublateral carinæ from base to apex as in *Crosimus;* the carinæ being entirely absent, as in *Salebius.*

Pronotum deeply bifoveate at base and connected by a broad, sloping groove adjacent to the basal margin, the groove being very sparsely to non-punctate.

Scutellum and elytra of similar shape and sculpture as in *Crisomus hirtus* Casey.

Last (distal) segment of maxillary palpi elongate, subacute in the males, more rounded in the female; three times as long as next to the last segment.

Eyes not hairy.

Prosternum and prosternal episternum coarsely punctate, as in *Crosimus;* the punctures becoming much less coarse and almost absent at the pronotal margin in *Glyptophorus* in distinction from *Crosimus* where the punctures of the prosternal episternum are distinct and large up to the pronotal margin. A well-marked, rather deeply excavated, elongate-oval pit anterior to the pro-thoracic coxæ, on the pronotal episternum. This elongate pit lies adjacent to, and follows the curve of the pronotal episternal-prosternal suture, and is not punctured and narrowed at the anterior end. In *Crosimus* this area is punctate and but little depressed.

Glyptophorus mycetœcus sp. nov.

Head, pronotum and ventral surface dark, rufo-testaceous; legs and antennæ lighter rufo-testaceous. Lateral margins, apical third and an obscure postscutellar area of the elytra dark rufo-testaceous; the median third and humeral areas rufous in the allotype and one male paratype, and darker rufous in the holotype.

Head, thorax and abdomen dorsally and ventrally clothed with rather coarse, rather deep punctures, each usually bearing a stout, decumbent yellowish hair. Eyes very convex and rather coarsely faceted, although not as coarsely as those of *Cryptophagus.* Antennæ 11-segmented; the first segment large, subglobular; second as long as first but more slender and oboval; third one and one-half times as long as fourth; fourth shorter than

either third or fifth; sixth to eighth equal in size, subglobular; ninth to eleventh suddenly larger, forming a loose, three-segmented club of approximately the same width; eleventh segment obliquely acute as in *Crosimus*. Pronotum with the lateral margins provided with eight to nine rather large serratures (very much larger than the serrulations of *Henoticus*), these teeth quite generally recurved and regular; no trace of sublateral, pronotal, carinæ; base strongly bifoveate, the foveæ being deep, conspicuous and connected near the basal margin by a wide, very sparsely to non-punctate groove. Abdomen with five free sternites, the first twice as wide as the second; second to fifth of approximately the same width. Female with all tarsi five-segmented; males with the pro- and meso-tarsi five-segmented, the meta-tarsi four-segmented; tarsal segments rather slender, not lobed beneath and bearing beneath rather long hairs; claws simple; last meta-tarsal segment (fourth) as long as first to third in the males; last meta-tarsal segment (fifth) of the female shorter, with fourth as long as third. Scutellum and elytra much as in *Crosimus hirtus* Casey.

Males: 1.8–1.9 mm. long; .8–.85 mm. wide.

Female: 2.0 mm. long; .9 mm. wide.

Described from three specimens, two males and one female, in the collection of the author, taken May 2, 1927, in the decaying tissues of the fungus, *Hydnum septenrionale* on the moist, rich soil of a climax sugar maple forest near Joliet, Illinois (Pilcher Arboretum).

This species forms an interesting addition to the fauna of this area, since the nearest relatives of the genus *Salebius* erected by Casey (1900) are apparently limited to the extreme western states, and the Pacific region. *Glytophorus* is distinct from allied genera on a number of morphological points, as the pronotal characters mentioned, although its members have a deceptive appearance and superficial similarity to *Crosimus*. Casey (*loc. cit.*, p. 90) says of *Salebius*, "This genus, with *Crosimus*, is distinguished from *Cryptophagus* by having three subequal obtusely dentiform nodal points along each side of the prothorax, at the apex and near the apical and basal fourth of the length, instead of a single nodal point, with a submedian spicule as in that genus." The strongly serrate pronotal lateral margins of *Glytophorus* readily separates this genus from others in the subfamily.

The three individuals of *mycetœcus* were taken with a number of related species, *e.g.*, with *Crosimus hirtus* Casey, *Henoticus serratus* (Gyll.), *Cryptophagus acutangulus* Gyll., and *C. nodan-*

gulus Zimm. in an interesting fungus community (Park, 1929b), and all four of these associated species have been recorded for Indiana by Blatchley (1910). For purposes of orientation, the following generic key, in part based on a modification of the one used by Blatchley (*loc. cit.*, pp. 570–571), may be of service:

Cryptophaginæ with the mesosternum not emarginate; the prominent convex eyes situated at the base of the head:

A. Lateral pronotal margins serrate, the serratures recurved and of approximately the same size and intervalation; sublateral carinæ entirely absent; base deeply bifoveate, the foveæ connected by a wide groove along the basal margin..... **GLYPTOPHORUS** gen. nov. (Fig. 1 a).

AA. Lateral pronotal margins not as above

B. Lateral pronotal margins triundulate (at apex, and near the apical and basal thirds)

C. Pronotal disk with a sublateral carina on each side*..... **CROSIMUS** Casey. (Fig. 1 b).

CC. Pronotal disk without sublateral carinæ..... **SALEBIUS** CASEY.

BB. Lateral pronotal margins not triundulate

D. Apical pronotal angles thickened and obliquely truncate; lateral pronotal margins even save for minute serrature often present near the middle of the margin; portions of the lateral margins generally obsoletely, obtusely serrulate..... **CRYPTOPHAGUS** Herbst. (Fig. 1 c).

DD. Apical pronotal angles not thickened or obliquely truncate; lateral margins more or less serrulate

* In the specimens of *Crosimus hirtus* Casey at hand, the sublateral carinæ are joined apically by a fine, distinct groove some distance from the raised apical margin, and the determination of these individuals is a provisional one since they may represent a new species of *Crosimus*. Casey (1900) in his description of the genus *Crosimus* does not mention any such apical groove connecting the sublateral carinæ. To clear up this point as much as possible Mr. L. L. Buchanan, of the Bureau of Entomology, through the courtesy of Dr. T. E. Snyder and Mr. Harold Morrison, kindly examined the type of *hirtus* Casey. His personal communication and enclosed drawing aided materially on this point and a portion of the former follows: "The two sublateral carinæ join the apical margin and are connected by it. There is also what appears to be a very fine groove along the rear edge of the apical margin that connects the two carinæ. I am not certain that this so-called groove is actually such; the apical margin is somewhat thickened and raised above the general pronotal surface and the appearance of the fine groove may be due to certain light reflections."

E. Lateral pronotal margins unevenly but distinctly serrulate; pronotum with distinct basal groove; body oval, convex, coarsely pubescent..... **HENOTICUS** Thomson. (Fig. 1 d).

EE. Lateral pronotal margins very minutely serrulate; pronotum lacking basal groove, base minutely bifoveate; body oblong, parallel, depressed, finely pubescent..... **PTERYNGIUM** Reitter.

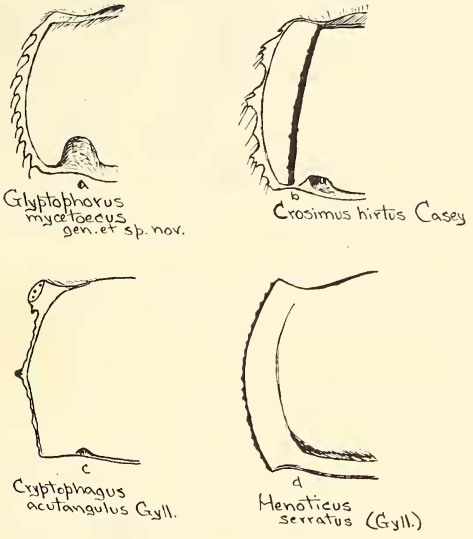


Fig. 1
(Drawn under 90 x)
Pronotal Characters in Certain Cryptophaginae.

CUCUJIDÆ

In working over certain groups in the Cucujidæ, the species of *Læmophlœus* occurring in the Chicago area were reviewed and the following key may be used to supplement the one employed by Blatchley for the Indiana fauna (*loc. cit.*, p. 566) since the genus is a difficult one.

LÆMOPHLŒUS Lap. 1837

A. Second segment of antennæ shorter than third

B. Labrum emarginate; elytra with a pale spot before the middle of each; larger (2.7–4 mm.)

C. Surface densely punctate; elytral spots well-defined and regular in form but variable, however, in a long series; the pronotal disk densely punctate with coarser punctures and dark testaceous; pubescence yellowish and longer than in the next species; lateral pronotal margins with from three to four serratures between the apical and basal angles; space between the basal pronotal groove and basal margin wider and sparsely to non-punctate ..... *biguttatus* Say.

CC. Surface finely and sparsely punctate; elytral spot less well-defined and irregular, but variable in a long series; pronotal disk sparsely and more finely punctate, lighter testaceous with golden and shorter pubescence; lateral pronotal margins with one serrature on basal third and often an obsolete serrulation on apical third; space between basal groove and basal margin much narrower ..... *fasciatus* Melsheimer.

BB. Labrum entire; elytra not spotted; smaller (1.4–2.1 mm.)

D. Body convex

E. Front angles of pronotum toothed. . *convexulus* Lec.

EE. Front pronotal angles rounded ..... *adustus* Lec.

DD. Body depressed; elytra shorter than abdomen ..... *modestus* Say.

AA. Second antennal segment equally as long as third; pale rufotestaceous; elytra not spotted (1.5–2.1 mm.)

F. Fine, transverse groove on head behind the eyes paralleling apical pronotal margin, and usually covered by the latter, present; thorax and elytra lightly pubescent; pronotum with sparse, finer punctures than the following species ..... *testaceous* (Fab.) (*liquidus* Casey?)

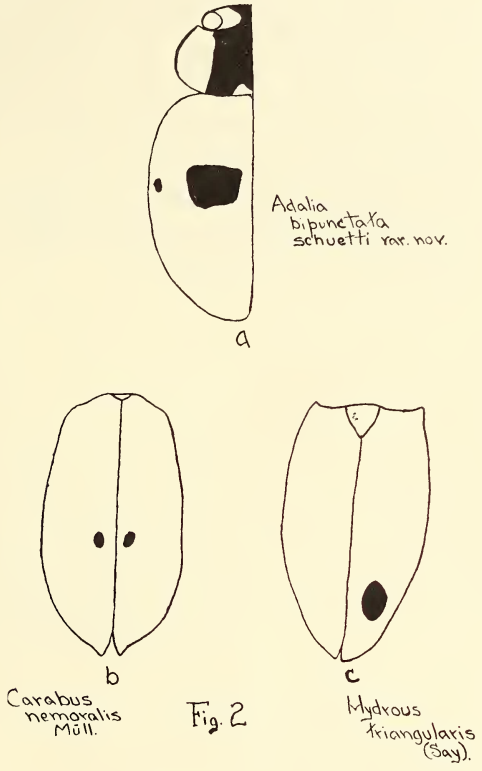
FF. No trace of such a transverse groove mentioned above; elytra much more deeply striate than *testaceous;* thorax and elytra more heavily pubescent; pronotum with much larger, close-set, dish-like punctures ..... *punctatus* Lec.

CARABIDÆ

The introduced European carabid, *Carabus nemoralis* Müll., has apparently reached the Chicago area in its westward movement and specimens were first noticed, crushed on the sidewalks in Chicago, on June 23, 1926. Between July 29 and August 23, seventy individuals (37 ♂, 30 ♀) were taken in Washington Park, Chicago, where they were to be found, generally males and females, in equal numbers and often a single male and female

together, in the soft sod under privet hedges bordering gardens of cultivated roses.

On August 16 an unusually symmetrical monstrosity was taken (Fig. 2 b). This was a male *nemoralis* in which each elytron bore a rounded, elevated nodule one millimeter high and situated one millimeter from the sutural margin.



HYDROPHILIDÆ

Another nodule, similar in shape to those noted for *nemoralis* above, was placed asymmetrically upon the apical third of the right elytron of the large scavenger, *Hydrous triangularis* (Say), (Fig. 2 c), taken June 12, 1927, in Lake Mendota, Madison, Wisconsin, by Mr. J. P. E. Morrison. The nodular swelling was 3 millimeters wide by 4.5 millimeters long.

LITERATURE CITED

BLATCHLEY, W. S., 1910, Coleoptera or Beetles known to occur in Indiana. Indianapolis: Nature Pub. Co., 1386 pp.

CASEY, COL. THOS. L., 1900, Review of the American Corylophidæ, Cryptophagidæ, Tritomidæ and Dermestidæ, with other Studies. Jour. N. Y. Ent. Soc., 8: 51–172.

PALMER, MIRIAM A., 1911, Some notes on heredity in the Coccinellid Genus Adalia Mulsant. Ann. Ent. Soc. Am., 4: 283–302.

————————, 1917, Additional notes on Heredity and Life History in the Coccinellid Genus Adalia Mulsant. Ibid., 10: 289–314.

PARK, ORLANDO, 1929a, Studies in the Ecology of Forest Coleoptera. Seral and Seasonal Succession of Coleoptera in the Chicago Area, with observations upon certain phases of Hibernation and Aggregation. Ann. Ent. Soc. Am., (in press). March, 1929.

————————, 1929b, Studies in the Ecology of Forest Coleoptera,—II. The Role of Light and the relation of certain Coleoptera to Plants for Food and Shelter, especially those species associated with Fungi in the Chicago Area. To be published.